# The Journal

OF THE

# Jamaica Agricultural Society.

FOR THE YEAR 1910.

VOLUME XIV.

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# The Journal
OF THE
# Jamaica Agricultural Society.

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## BOARD OF MANAGEMENT.

THE usual monthly meeting of the Board of Management of the Jamaica Agricultural Society was held at the office of the Society, No. 11 North Parade, Kingston, on Thursday, 16th December, 1909, at 11.40 a.m. Present: Hon. Dr. Pringle, Vice-president, in the chair, Hons. L. J. Bertram, H. H. Cousins, R. P. Simmonds, Messrs. D. Campbell, R. Craig, A. W. Douet, A. C. L. Martin, J. Shore, Conrad Watson, J. R. Williams, and the Secretary, Jno. Barclay.

Apologies for absence were submitted from His Grace the Archbishop and Mr. Haggart.

The Chairman moved the following resolution:—"That this Board on behalf of the Jamaica Agricultural Society, records its profound regret at the unexpected and premature death of Sir Alfred Jones, K.C.M.G, who has done so much for this Society and for Jamaica. That a copy of this resolution be sent by the Secretary to Messrs. Elder, Dempster & Co."

Mr. Craig seconded and it was unanimously agreed to.

**Praedial Larceny.** The Secretary stated regarding the Revised Praedial Larceny Law, that various of the Branch Societies were taking advantage of the provisions of the Law and nominating men to be persons authorised to arrest and deal with suspected persons.

Mr. Campbell said that the law was already proving defective, or Resident Magistrates had made it so. He stated a case in which he was personally interested, where the Resident Magistrate refused to admit that the stealing of produce was praedial larceny unless the witnesses had actually seen the accused taking the product from the trees and would refuse to convict for common larceny unless the ownership of the cocoa could be proved to his satisfaction; the case in question was the theft of cured cocoa from him. If Resident Magistrates took up this position they could make almost any law in-operative.

The Board asked Mr. Campbell to state his case in writing to be referred to the Government, and the Secretary was also directed to ask the Government to request the Resident Magistrates to report on the working of this law.

The Secretary submitted the following letter from Mr. Robert Craig, Savoy, Chapelton :—

I beg to request that at the next meeting of the Board of Management, you will ask the Board to nominate the undermentioned persons to the Inspector of Police under Section 2 of the Praedial Larceny Law, 1909, to be "authorised persons" having authority to arrest and deal with suspected persons as provided in Section 1 of the said law.

The following are the persons recommended to be authorised :—Robert Craig, Overseer, Danks Savoy Estate, Chapelton P.O. ; David Mason, Head Book-keeper of same ; James Henry, Mammee Gully, Chapelton P. O. ; Edward Nelson, Chapelton P.O.—(Sgd.) ROBERT CRAIG.

The Secretary was instructed to send in these names to the Inspector General.

**Railway Freights.** The Secretary was again asked to remind the Government, that as the Board understood new tariff rates were being prepared for the Railway, that a copy of the proposed rates should be sent to the Board for submission to a Committee in order that suggestions might be made.

**Importation of Bees.** The Secretary submitted the following communications :—

18th November, 1909.

I am directed by the Governor to acknowledge the receipt of your letter dated the 23rd ultimo, regarding the importation of queen bees into the Island, and in reply to transmit to you the accompanying copy of a minute by the Director of Agriculture in the matter and to ask whether the Jamaica Agricultural Society are of the opinion that the suggestions contained therein will meet the requirements of the case if adopted.—(Sgd.) G. M. WORTLEY, Actg. Asst. Colonial Secretary.

To the Hon. Colonial Secretary.—I have no one in this department competent to decide whether queen bees are, or are not, infected with foul brood, and I suggest that a certificate declared before a British Consul or Magistrate that the bees are free from infection should be required before any are admitted into the Island. The trouble involved in doing this will greatly tend to check the importations.—(Sgd.) H. H. COUSINS, Director of Agriculture.—5/11/'09.

From Mr. R. S. Gamble, Kingston, 27th October, 1909.

I thank you for your letter of the 23rd inst., received yesterday, and am glad to know that the Committee of your Society received it and acted upon my letter as to the importation of bees. Since writing it, I have heard from the Collector of Customs that one hive of bees had been imported shortly before I wrote, consigned to Morant Bay or Port Morant.

With regard to the importation of queen bees, I am aware that foul brood might be introduced by them or the "attendant worker bees" which must come with them, but these are very few in number, and I understand that it is quite easy to treat them by special feeding for a few days, when all danger of introduction of diseases by their means would be avoided. Possibly it might be well to obtain special advice as to what this treatment should be.

I should certainly recommend that the necessary special treatment should be applied to all importations of queens and that the importation of whole hives or "Nuclei" should be prohibited. With thanks for your attention.—(Sgd.) R. S. GAMBLE.

Mr. A. H. Miles, the Collector General, wrote :

29th October, 1909.

In reply to your inquiry of the 14th inst., I have the honour to say that a hive of bees was imported at Kingston on the 1st inst., and taken

coastwise to Morant Bay. I understand that the hive consisted of Italian bees from Ohio.—(Sgd.) A. H. MILES, Collector General.

The Secretary said that he had written Messrs. A. I. Root & Co., Medina, Ohio, to ask their opinion on this matter, and what was the usual process adopted in the United States to prevent the introduction and spread of "Foul Brood" (a) from foreign countries, (b) from State to State, and what process might be adopted to secure that no infection would come here with queen bees.

It was resolved to await this information before proceeding further.

**Pound Laws.** The Secretary reported that he had circularised the Clerks of the Parochial Boards as requested by the Board, asking for suggestions as to the revisions that might be made in the Pound Laws. The only Boards that had replied with any suggestions of moment were St. Mary and St. Ann.

Mr. Craig said that he had brought up this subject and had read the replies, but none of them touched on what he thought was the great drawback, viz. :—that the distraining fees were not heavy enough. He knew cases where it paid a man to turn out his mules on the road every night and get free pasturage, this man being ready to pay pound fees occasionally, a night's good feeding being of more value to him than the fees he would require to pay if the animals happened to be impounded.

The Secretary was instructed to write the clerks of the Parochial Boards again, asking them to put this fact before the various Parochial Boards and to enquire if they considered the present pound fees a sufficient deterrent to stock straying, and if the fees collected were sufficient to upkeep the pounds without loss to the parish.

**(a) Cutting down of Fruit Trees.** The following letters from the C.S.O. were submitted :—

Colonial Secretary's Office, Jamaica, 25th October, 1909.

I am directed by the Governor to forward herewith a copy of a letter from Mr. S. A. G. Cox, suggesting legislation for the protection of fruit trees, and to say that His Excellency will be glad if the Board of Management, after making such inquiries as they may think necessary through one of their Committees by reference to the Agricultural Instructors and Branch Societies, will inform him—

(1) Whether there is reason to believe that the food supply furnished by fruit trees is, on a general survey, being reduced, without compensatory substitution of equally available food supply, by the extension of the cultivation of bananas, and if so in respect of what kind of fruit trees this is the case ?

(2) If so, whether the persons to whom the destroyed fruit trees and their produce belonged are being reduced to the border of starvation and to terrible distress by this process, and if so, how and why ?

(3) Whether persons to whom the destroyed fruit trees and their produce did not belong are being so reduced to the border of starvation and to distress, and if so, how and why ?

(4) Whether the substitution of banana cultivation for other occupation of the land, either by other food-producing fruit trees or by other plants, is accompanied by no increase in the wage-earning capacity of the labouring population affected ?

(5) Have food supplies of tree fruits in the towns been made dearer and terrible distress occasioned in them by the extension of banana cultivation (as distinct from climatic causes). If so, has there been any compensation by the cheapening of bananas available for daily food ?

(6) Does the Agricultural Society advise any legislation for the protection and increase of fruit trees ? If so, on what lines ?

(7) Does the Society in its JOURNAL and through its Instructors and Branches, pay due attention to the encouragement of the planting of food trees other than the banana, and does the Agricultural Department provide adequately for the supply of fruit trees for planting by those who have no other means of procuring them ?

2. The Governor will be glad to receive any observations the Board of Management may be so good as to make on any other aspects of this question.—(Sgd.) P. C. CORK, Colonial Secretary.

From S. A. G. Cox, Esq., to the Colonial Secretary.

No. 114¾ East Street, Kingston, October 18th, 1909.

Hon. Colonial Secretary, Sir.—I have the honour to invite the attention of His Excellency the Governor to the fact that the food supply of our people or rather that portion thereof viz., the fruit trees, are disappearing in order to make room for the cultivation of bananas, and in consequence our people are being reduced to the border of starvation, with no increase in their wage-earning capacity and no other means of relieving their terrible distress particularly in the towns, and I invite the Government to legislate to protect and increase the fruit trees.—(Sgd.) S. A. G. Cox.

The Secretary said he had submitted this to the Staple and Minor Products Committee and to the various Instructors. The replies were unanimous and definite that there was no reduction in the number of fruit trees in the various districts although there might be isolated cases of fruit trees having been cut down without compensating production of bananas. (2) That outside the banana growing districts such food-producing trees as breadfruit were steadily increasing, and that the Agricultural Instructors had always recommended these trees to small settlers as good shade for cocoa. (3) That lands now under bananas were formerly under pasture, ruinate or cane, and that the few fruit trees that might have been cut down in ruinate, had been compensated for by the large amount of cheap food provided in bananas. (4) That the wage-earning capacity of the labouring class had been largely increased by the cultivation of bananas; that consequently there was no such thing as distress and starvation caused through lack of fruit trees. (5) That the Agricultural Society and its Agricultural Instructors advocated not only the planting of fruit trees in available places, but what was of more account—the care of those already in existence, especially breadfruit trees. That fruit trees were kept in stock at Hope Gardens at nominal prices. (6) That no legislation was necessary.

**(b) Seeds and plants.** The following letter from the Colonial Secretary was submitted :—

C.S.O., Jamaica, 3rd December, 1909, 11917/15453.

I am directed by the Governor to ask you to inquire as to any necessity there may be for the supply of seeds and plants to the people in the Hagley Gap District and neighbourhood who have suffered by the recent floods.—(Sgd.) P. C. CORK, Colonial Secretary.

The Secretary said he had made inquiry in the Port Royal Mountains and Hagley Gap districts, and found that the red bean crop which this year had been a very large and promising one, and which was of great account to the people in the mountain districts had been entirely washed away, and that also the vegetable crop which was largely grown in the mountain districts and which was of great importance as a money crop, had been so badly damaged that vegetables were now very scarce in Kingston. He thought it would serve the double purpose of securing a quick money crop for the people who had suffered loss, and securing supplies of vegetables for Kingston—which otherwise would probably require to be imported—if supplies of red beans, corn, vegetable seeds and Irish potatoes were furnished through the agency of the various Branch Societies and Sub-branches. If a grant was made he would be glad to arrange to handle the matter. He was instructed to report accordingly to the Government.

**Estimates.** The Secretary in snbmitting the estimates, said a meeting of the Finance Committee had been held the previous afternoon, when it was recommended that in view of the additions to the Instructors' vote required, no alterations in the various estimates should be made, the only change therefore, would be in the allocation for Instructors which involved the addition of £800. The Instructors' Committee had met that morning and he submitted their report as follows :—

The Instructors' Committee met at this office this morning at 10 a.m. Present: The Hon. Director of Agriculture, in the chair, the Hons. L. J. Bertram, Dr. Pringle and R. P. Simmonds, Messrs. D. Campbell, R. Craig, A. C. L. Martin, J. Shore, J. R. Williams, and the Secretary, and beg to report as follows :—That the minutes of the previous meeting contained on page 396 of the JOURNAL for November, were submitted and after discussion, of the various items were confirmed.

2. The Secretary's estimates prepared from the minutes, as regards proposals for Instructors were submitted and confirmed. These involve an addition to the allocation for Instructors of £800 as follows :—

| | |
|---|---|
| Five first-class Instructors at £300—Palache, Arnett, Hirst, Levy and Wates | £1,500 |
| Instructor for Hanover and Westmoreland | 250 |
| New Instructor for St. Catherine | 200 |
| Assistant Instructor for Bath | 100 |
| Judging Prize Holdings Competition | 50 |
| | 2,100 |
| Less Elder, Dempster & Co.'s payment | 580 |
| | 1,520 |
| Less previous year's allocation | 720 |
| | 800 |

3. That owing to the reports received from the Western district, the Chairman had made enquiries as to the work of Mr. Mennell, and, after consideration of the reports he had received, the Committee recommend that as Mr. Mennell has not, after three years' trial, proven satisfactory in his work as an Instructor, he be given three months' notice from January 1st, and a new Instructor be advertised for.

4. That the Government be asked to renew the special provision in aid of South Manchester and South St. Elizabeth of £250.

5. That the matter of increasing the classes in the Prize Holdings Competition be not proceeded with this year, but that it is desirable when funds permit, for a class confined to holdings of one acre and under, being provided for.—H. H. COUSINS, Chairman Instructors' Committee.

The Secretary was directed to forward to the C.S.O. the report of the previous meeting of the Instructors' Committee containing the recommendations made, together with statement showing the increases for Instructors.

**Half-Yearly Meeting.** It was resolved to hold the Half-yearly Meeting on Thursday, 20th January, at 11.40 a.m., and that if any important business was in hand for the Board, it should meet after the General Meeting.

**Prize Holdings Competition.** The report of the Judges in the Competition for St. Thomas was submitted. (This is published in another part of the JOURNAL).

**Exhibitions.** The following letters were submitted *re* Exhibitions :—

(a) Letter from Messrs. Pickford & Black—

Halifax, N.S., October 19th, 1909.

We are sending you under separate cover a photograph of part of West India Exhibit shown at the Halifax Fair.

The authorities at Toronto have given us very much increased space for next year's West India Show, and we hope that Jamaica will make an effort to send an exhibit as we think it would do a great deal of good. The Show from the other West India Islands outside of Jamaica has been a great attraction at the Toronto Fair for a number of years, and we have no doubt at all that it has done a good deal to increase business between those ports and Canada.—(Sgd.) PICKFORD & BLACK, per C. S. PICKFORD.

(b) Letter from Trinidad, forwarded by the Director of Agriculture as follows :—

Permanent Exhibition Committee, Trinidad, 18th November, 1909.

Sir.—Mr. Aspinall of the West India Committee, has addressed this Committee on the subject of the Japan-British Exhibition to take place at London next year. He suggests that the several West India Colonies should combine in the same way as was done a few years ago at the Crystal Palace Exhibition, each taking such place as it required, but the whole occupying one block so as to make a good general show. My Committee are inclined to recommend that Trinidad shall participate in this Exhibition, which seems likely to attract much attention, and they quite agree as to the desirability of combination to the extent above named, each colony, of course, paying its own special expenses.—(Sgd.) EDGAR TRIPP, Honorary Secretary.

After discussion, the Secretary was directed to write the Government that representation at Exhibitions was desirable and ask for favourable consideration of these matters;—he was also asked to quote the grants made for the previous Exhibition referred to.

**Protection of Birds.** Letter from Dr. Husband was submitted as follows:—

Newport P.O., November 25th, 1909.

As there has been considerable discussion with regard to the protection of small birds, may I suggest that a copy of the Regulations as to the close season for birds, should be sent to all school teachers to be read to the children and afterwards hung up in the schools. In the country parts the small boys are the greatest offenders and these should be warned from time to time by the teachers. Further, may I suggest that as the AGRICULTURAL JOURNAL is consulted by agriculturists all over the Island, the notices of trees, plants, etc., for distribution, should be published in that JOURNAL and not in the GAZETTE, which is only, as far as I am aware, seen by Justices of the Peace and therefore not by—H. AUBREY HUSBAND.

The Secretary was instructed to give effect to the suggestions to print the Regulations as to birds, and the list of fruit trees for sale at Hope Gardens, in the JOURNAL on trial, to write the Colonial Secretary asking for a supply of the Regulations as to the close season for birds for distribution, to ask the Superintending Inspector of Schools to see that a copy of these Regulations was in every school; and to write Dr. Husband thanking him for his letter.

**Soy Beans.** Letter from Elder, Dempster & Co., *re* Soy Beans, was submitted.

West African Agricultural Department, Liverpool, 28th October, 1909.

At the request of our Senior, Sir Alfred Jones, K.C.M.G., we have pleasure in sending you, per the R.M.S. *Port Antonio*, 1cwt. of Soy Beans for cultivation in Jamaica, together with literature on the subject.

Sir Alfred is anxious, owing to the many useful products which are manufactured from the bean (see attached cutting from the Liverpool *Journal of Commerce*), to see its development in Jamaica. As you will see from the particulars we send herewith, the plant is of easy culture and rapidly attains maturity.

We shall be glad to hear that the consignment has reached you and perhaps you will kindly advise us, in due course, the result of this experiment. It may encourage you to know that we are receiving favourable reports regarding the growing of the bean in West Africa.—ELDER, DEMPSTER & Co., per Y. P.

The Secretary was directed to acknowledge receipt and thank Messrs. Elder, Dempster & Co., and also to see that the seed had a fair trial.

**Stallion and Bull.** The Secretary submitted the comments of the Live Stock Committee *re* Stallion and Bull, which had been submitted to them.

Mr. E. W. Muirhead's application for both animals was favourably considered;—for the bull to stand at Marshall's Pen in Manchester, and for the stallion "Sir Gerald," to stand at Pepper Pen in St. Elizabeth.

**Grants to Shows.** The following applications for grants to Shows were submitted:—(a) St. Thomas-ye-Vale, at Bog Walk, on 31st March; (b) Lucky Hill Branch, at Gayle, in August, 1910.

The usual grants were allocated, provided the rules were fulfilled.

**Affiliation.** Applications for affiliation from new Agricultural Societies were submitted as follows :—(a) Troja ; (b) Birnam Wood. These Societies having followed the rules were duly affiliated.

**Members.** The following new members were elected :—A. Russell, Runaway Bay ; W. J. Brooks, Stony Hill ; W. U. Gooding, New Grange, Tobago ; T. H. Donaldson, Costa Rica ; J. P. McDonald, New York ; H. G. Watson Taylor, Lucea ; J. O. Sharp, Toronto, Canada ; W. H. Reid, Toronto, Canada ; F. W. Oates, Toronto, Canada ; W. H. Panton, Bocas del Toro ; John Barclay, Grenada.

The meeting adjourned till 20th January, 1910.

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## THE BENEFITS OF AN AGRICULTURAL SOCIETY.

(Being Paper Read by Mrs. J. B. Deacon before the Smithville Branch).

A well-known story is told how a father cured his seven sons who were always quarrelling with each other of the habit, by presenting them a bundle of sticks which they could not break, but upon untying the bundle and presenting the sticks one by one to each son, they snapped them quite easily, thus showing that "Union is strength but division is weakness."

Every Society has its definite aim or purpose, but whatever be the aim, "Union" seems to be the common aim of most, if not all Societies.

Jamaica is purely an agricultural country and as such, it is necessary that the inhabitants combine and use every God-given power for the proper development of the soil, so as to get out of it the most we can at a maximum of profit and a minimum of cost. By the combined efforts of the members of the Agricultural Society, we can always accomplish more than we otherwise could as individuals.

If we want a favour from the Government or the Parochial Board, there is more likelihood of our obtaining it as a Society than as individuals.

Through the Agricultural Societies we get to study some of the modern principles of agriculture, have practical demonstrations on the planting of certain crops, and on pruning, budding, trenching and manuring, etc.

We learn through the Agricultural Societies how to care our live stock better and to get the most out of them ; how to fight the different diseases which plants as well as our animals are heir to.

We compete for prizes for our holdings when the Prize Holdings Competition comes round, which hitherto was unknown, and we are thus stimulated to make our small holdings more attractive

and comfortable all the year round than we otherwise would have done.

Through the Agricultural Society we have a greater claim, yes the highest claim upon the Government, from the fact that His Excellency the Governor is the President of the Jamaica Agricultural Society.

Through the Agricultural Society we can get whatever information we require, besides the Monthly JOURNAL, which is teeming with useful hints and suggestions whereby the members of an Agricultural Society may become more intelligent cultivators and farmers.

Through the Society the services of the Agricultural Instructors are at our disposal from time to time. We can get better breeds of stock, large or small, the best species of plants easier and at a cheaper rate than the majority of outsiders.

It is the Agricultural Society that has brought about this useful and profitable industry, viz.: the Jippi-jappa Hat Industry, whereby our girls can learn a most beneficial trade if they like.

Then there are the Agricultural Shows which can do so much to enliven our agricultural instincts,—at which we can all meet together for a real agricultural outing, where all the talk, conversation and discussions are on agricultural topics suggested by the exhibits, where much trade can be done in selling stock, etc., and where prizes may be secured for the best exhibits.

I am sure that you will be able to supplement many more uses, some probably of greater importance, but let me hope you will find *something in what I have written that will be of benefit.*

In the meantime, let me in the words of the poet encourage you :

Let us all be up and doing,
With a will for any fate,
Still achieving, still pursuing,
Learn to labour and to wait.

## THE CURING OF COFFEE.

(PAPER READ BEFORE A MEETING OF THE CHRISTIANA AGRICULTURAL SOCIETY, OCTOBER. 1909.)

THE first and foremost necessity is that the coffee *must be cherry ripe,* when it is picked, otherwise the quality and quantity of good marketable coffee will be seriously decreased.

Now what is cherry ripe coffee? (a) It is *not* coffee that has turned yellow, or that may be just beginning to shew signs of turning red, still less is it coffee that is only beginning to yellow.

(b) It is *not* coffee that was ripe a week or ten days ago, and of which the cherry skin is turning or has turned black and is beginning to dry on to the seed.

(c) But cherry ripe coffee is just what the name indicates, viz., coffee that has just got to the stage of being bright red like a cherry,

in which state the cherry skin is soft and juicy and very easy to be taken off.

Why is it that best results are not obtained from either *unripe* or *over-ripe* coffee?

(d) *Unripe*, because in this state it is impossible to remove the cherry skin by any machine without injuring in a greater or lesser degree the next or parchment skin, and the least injury to this parchment skin very seriously affects the quality of the coffee.

(e) *Over-ripe*, because in this state the cherry skin has dried up, and with it the gummy substance between it and the parchment skin, and thereby renders it impossible to remove the cherry skin without injuring the parchment skin, causing similar loss again.

Further, the gummy substance in *unripe* coffee has not got to its right state yet, and in *over-ripe* coffee has dried up, making it impossible to get the right fermentation before the coffee is washed.

Hence it is impossible to get the best results unless the coffee is all *properly cherry ripe when picked.*

It is a very fatal mistake to leave coffee which ought to be picked this week until next week, and then pick as well as this, that which will only be ready for picking one or two weeks after. Such a policy is most assuredly taking "Short pass which draw blood."

2. It is of the very greatest possible importance, that the *pulper* should be in *perfect order* and under *proper control*, the copper, the jaws or chops perfectly accurate and set exactly right, the sieve in good condition and not allowing imperfectly pulped coffee to drop through,—and further, a good supply of water during the pulping, this latter being very important. In short, the *man* must be *master* of the *pulper*.

3. The third essential is, that the coffee must be pulped the same day it is picked or at the very latest the day after, and the reason for this is twofold. (a) Because the longer left the more danger of the parchment skin being injured with the pulper, and more of the cherry skin being left on the coffee.

(b) Because the difficulty of getting the proper fermentation and therefore of washing clean.

4. Next in order comes the *fermentation*. The length of time necessary depends altogether on the state of the ripeness of the coffee, but should not be less than twelve hours or more than 30 to 35 hours after the pulping. To secure even and correct fermentation, spread the coffee in even thickness over the washing tank and just barely cover with water.

5. When the fermentation is complete, the coffee ought to be thoroughly *washed*.

To secure this there must be *water* and plenty of it.

The *least* water necessary now, is *at least six inches* higher than the coffee in the cistern though this amount is hardly sufficient, otherwise it is impossible to skim off the light seeds and the particles of cherry skin which float over the good coffee.

Most small settlers make a big mistake when they seem to think it is sufficient just to rub and stir the coffee about in a *little* water until the gummy substance comes off, whereas the *chief object* of washing is to get away from the good parchment coffee all *light and inferior* coffee and all remains of *cherry skins*.

6. We now come to the *drying*, and what an amount of loss is caused by not attending properly to this.

It is all important now to prevent two things happening. (a) All *mildewing* and *moulding* of the parchment skin after it has started drying and (b) *not under any circumstances* to get the parchment coffee *wet* after it has started drying.

Most people think that if the fresh-washed coffee gets a day's sun, it has dried or quailed sufficiently to put up and needs no more drying until the time for milling or cleaning comes, whereas with the best washed coffee it is not safe to store it up until it has received at least three days' drying, though four days is a much safer minimum. And why? Because with less, mildew and mould will affect and discolour the parchment skin, which in turn will affect the coffee bean itself: and every berry that has received any injury to the parchment skin and bean itself, will very speedily go from the *mildew to rot* and be absolutely ruined and lost.

I can safely say that at least three-quarters of all the bought parchment coffee that I have ever handled, has produced varying degrees of loss through this *not drying enough at the start*, and causing most of the injured beans to absolutely rot.

The loss in weight of good coffee that Jamaica reaps every year but loses again through this *careless neglect* is something enormous.

I make bold to say that not one-half of the coffee sold as parchment (in these districts) ever sees the sun again from the day it is put up when it is said to be quailed, until it is sold as parchment, be that time anywhere from October to March or April.

Further, no one has any business to sell still less anyone to buy, parchment coffee as such *until it is dry*, except at a correspondingly less price than the market price. And dry means dry, not green or half or three-quarters green.

A quart of good parchment coffee when *dry* ought to weigh 1lb. If it weighs *less* and yet is *dry*, then it is clear that the coffee was *not skimmed* and will turn out bad. If it weighs *more* then it is equally clear that the parchment coffee is *not dry*.

Thus if a quart of parchment coffee weighs 1¼lbs., which is about the average weight as sold in these parts, a barrel will weigh 140lbs., and with the price at say 20/- per barrel, such a barrel bought by weight at 112lbs. to the barrel, would only be worth 16/- *without* any deduction for the drying. And so on in proportion.

*Every time* the coffee gets *wet* after it has once started drying, *something* has gone off the quality and hence off the market value.

It is also very essential to keep the barbicues or mats thoroughly clean, as all dirt hampers the drying, and especially in

the early stages is very apt to seriously affect the aroma or smell of the coffee, which is almost as important as the colour when it comes to selling.

We come now to the *cleaning*, or milling or grinding as we mostly call it in error.

It is absolutely necessary before cleaning, that the parchment coffee be *perfectly dry*, and in the second place that it be *well warmed*.

In the first place because the coffee cannot be dried after it is cleaned, and in the second place because the coffee will clean three or four times as quickly and more than this, it is when well warmed that the *silver skin* comes off easily. If the coffee is not warmed when cleaning begins, it is next to impossible to get the *silver skins* off.

A great deal of Jamaica coffee fetches lower prices than it otherwise would just because of this neglect.

It is a peculiar thing but nevertheless quite true, that with all the foregoing conditions carefully carried out, there will be some injured or inferior beans which no care or machinery can separate from the good coffee, hence the necessity for the final stage, viz.:

8. *Handpicking.*—No coffee should be sold until it has been carefully hand-picked, even if it has been so carefully prepared that there may be only a few ounces of inferior coffee out of 100lbs., yet it should be done and is worth the trouble taken.

Anyone who has carefully attended to *all* of the foregoing eight conditions, will have a good quality of coffee to sell, and deserves to get a much better price than his careless neighbour and will do so, if he only sticks to it, and can always be sure of it from me, as it is one thing that I have always tried to do and always will do, viz.: pay more for a better quality.

In order to shew you that I know what I am talking about, when I insist that all the foregoing *are essentials* and absolutely necessary for the proper curing of coffee, I will give you a comparison between my own coffee which I cured on these lines last crop and what I bought both in the cleaned state and in parchment.

Of my own: out of a total of 5,049lbs. of good coffee, I extracted by machinery and hand-picking 73½lbs. of triage; that is 1.45 per cent. or say 1½lbs. triage out of every 100lbs.

If I include all the skimmings, then out of 5,624lbs. I extracted 133lbs. of triage or 2.36 per cent. or say 2⅜lbs. of triage out of every 100lbs.

Compare this with what I bought: out of 95,538lbs., I extracted by machinery 5,884lbs., and by hand-picking 3,173lbs., or a total of 9,057lbs. of triage, which gives 3.32 per cent. or 3⅜lbs. per 100lbs. by hand-picking and 6.16 per cent. or 6 one-sixth lbs. per 100lbs. by machinery or together, 9.49 per cent. or 9½lbs. of triage out of every 100lbs., and this supposed to be *without the skimmings*, as against 2.36 per cent. or 2⅜lbs. out of my own including the skimmings.

Had these 95,538lbs. of coffee been as carefully cured as my own, there would have been no less than 6,788lbs. more of good, marketable coffee ; and further, the whole lot would have realised at any rate a few shillings per cwt. more in the open market and saved the cost of hand-picking and extracting by machinery 6,788lbs.

I leave these figures with you and would ask you : "Does it or does it not pay to stop careless neglect, when we know what the remedies are?" And don't forget that "Honesty is the best policy," and "A stitch in time saves nine," even when it comes to growing, curing, selling or dealing in coffee.—ALFRED WALDER.

Walderston P.O.

## THE FITTING OF HARNESS.

(WRITTEN FOR THE SOCIETY FOR THE PROTECTION OF ANIMALS BY J. C. FORD).

ONE of the most fruitful causes of sores and wounds in draft animals, is the carelessness or ignorance shown in fitting harness.

It would be an excellent thing if all persons interested in the working of stock and desirous of minimising the careless cruelty that is so crying an evil among us, would take every opportunity of calling attention to improper methods of adjusting collars, traces, back chains and saddles, and endeavouring by persuasion and advice, to get the evils remedied. Much may be done by carefully and patiently explaining the proper way of harnessing draft animals, when the mistakes made through ignorance or carelessness, are obvious as they often are.

The most important part of draft harness is the collar. If this does not fit, if it is too wide or too long, the pressure due to the load comes in the wrong place. The weight is not distributed over the surface of the horse's shoulder, the point of the shoulder bears the most of the weight, the collar wobbles about and bruises and sores are inevitable.

If the collar is too small the horse's neck is compressed, his breathing is impeded—and in this and the previous case, he cannot use his strength without pain or discomfort even if no bruise results and he is always working at a disadvantage.

If breastplates are used, they are almost invariably too high or too low. When too high they impede the breathing, when too low, the horse cannot put his weight into the load, and the upper edge of the breastplate cuts into the flesh.

With regard to the saddle, the pads upon which it rests should fit the horse's back, leaving the backbone free and untouched. It should be girthed tightly with a strong, broad girth.

One of the most important things requiring attention is the length of the back chain for a shaft animal drawing a two-wheeled vehicle. If too short the line of draft is carried upward from the

horse and greatly reduces the efficiency of the horse's effort, besides causing discomfort and probably pain, with resulting galls It is better too long than too short. as the line of draft, if not horizontal as it should be, inclines downward, but this is far better than when the line of draft takes an upward direction from the point of attachment at the collar.

One frequent cause of the line of draft inclining upwards is the manner adopted in fixing the staple or tug ring on the shaft of the cart. It generally projects several inches above the shaft; and when the short trace chain is attached to this hook, and the back chain is also short, the line of draft from the horse's shoulder is so much inclined in an upward direction, that every effort of the horse tends to throttle him.

It is always better to use long trace chains attached to a draft bar close to the body of the cart like the traces of a dog cart. When this cannot be done, the short trace chains should fasten to hooks or loops on the under surface of the shaft, the upper hook being only used to attach the back chain.

Breechings and cruppers to be of any use or assistance to the horse, must be properly adjusted as to length, so as to come into action at the proper time. More often than not they are so loose as to be quite useless, or so tight as to impede the free action of the animal or cause him severe discomfort.

A little care and attention in these matters will do wonders in preserving an animal from galls and bruises, and more work will be got out of him at the expense of less effort and distress.

In many cases these evils result from sheer ignorance, and cartmen and draymen would not be ungrateful for the timely advice of those who know better and who will take the trouble to instruct them in the better way.—J. C. Ford, Kingston.

## HINTS TO EXHIBITORS AT SHOWS.

By John Barclay.

*Horses.*—All horses brought to a Show should be well-groomed and be in good condition,—condition does not mean fat, but good, useful, working condition. There should, of course, be no ticks found on the animal exhibited; the ears and other corners should be carefully cleaned as well as parts that are seen. A shining coat such as is looked for in riding and harness horses, is not necessary for brood mares, but they should be clear of dirt and clear of ticks, and have a good grooming for the occasion. Colts too, should be clean and well brushed down.

In breeding stock superficial blemishes the result of accident, external injury, overstrain, and overwork, are not a disqualification, only unsoundness will disqualify them.

The following are some of the conditions regarded as evidence of unsoundness, the existence of which in a degree will warrant disqualification, namely :—Bent forelegs, contraction of foot, Lamini-

tis, Navicular disease, Ophthalmia, side-bone, ringbone, twisted pastern, bone-spavin, curb, thoroughpin, bog-spavin, cataract, congenital defects of sight, nasal disorder, thick wind, whistling, splints, and bursal-enlargements; Defective conformation will also be a ground for disqualification. Riding and driving horses should have no blemishes that would unfit them for these purposes or cause them to break down readily. Such blemishes are Brushing, Speedy Cut, Forging, Windgalls, Broken Knees, Narrow Chests. Slack Loins, and Long Pasterns are a disadvantage.

All harness should be clean and brightly polished, but new harness or fancy harness will not have any effect on the judging; so long as the harness is strong, good, and neat, that is enough. Riding horses should be trained first to be good walkers, to trot at command, and canter at command. Good walking and trotting are the most essential paces. Driving horses must be good, clean trotters.

All stallions, mares, and grown colts should be haltered and trained to lead with the groom walking at the side of the animal. They should be trained to trot readily, and be otherwise handy and obedient, and when brought up to be inspected by the judges should be placed with their heads all in the same direction, and at some distance from each other, so as to allow the judges to examine them without being kicked.

In all classes when being shown, whether in the Breeding Stock, or the Riding and the Driving, each one should keep some distance behind the one preceding and towards the outside of the ring, that is, near the ropes.

There is really no advantage, but rather a disadvantage, both to the judges and also the exhibitors in riding and driving fast unless told to do so. The prize does not necessarily go to the one who makes most show or gets round fastest. Buggy horses whether single or double should be trained to walk well in harness. They should also be trained to back. Very few buggy horses in Jamaica do this easily.

*Cattle.*—Cattle should have no ticks and should be clean, and all cattle except calves following cows, should be trained to lead in halters before they are brought to a Show. Make provision for your stock to get water and food,—if the Show Committee do not provide this, which they usually do. During the Show, endeavour to secure some shade for them. On entering the Show ground with the cattle, inquire where the cattle are to be exhibited, and on arriving at the spot inquire for the clerk in charge of the cattle section, and see that your exhibit is put in its proper place. There are or should be, separate places for different classes, and there are usually separate places for planters' stock and settlers' stock.

Do not tie the label round the animal's neck where he can destroy it. If it has on a halter as it should have for show purposes, tie the label to it close behind the left ear.

Milking stock should be well groomed, and should not kick when being milked; no ticks should be found on them. In a

milking competition quart measures and buckets to hold the milk are provided. Where the cow is not broken to milk without the calf, it should be guaranteed that the calf was only separated from the dam at 6 to 7 o'clock in the evening until the time of milking next morning, which should be as soon as possible on the morning of the Show.

*Sheep.*—Sheep should be washed before being brought to a Show, and be clear of all dirt, burs, etc. If the wool is too long it may be sheared, but as a rule sheep appear to better advantage with a moderate growth of wool.

*Goats.*—Billy goats should be washed with brown soap with a little Jeyes in the water, and if they are long-haired, have the hair brushed out straight; if short-haired the skin should be groomed. No matter how superior a goat may be, if it is brought dirty and evil-smelling it should not get a prize. In the milking competition a pint and a quart dish are be provided by the Show Committee along with a small bucket. The nannies should be trained not to kick on being milked. The kids should be separated from the dam from 7 o'clock the previous evening. Goats are very fond of eating labels, so these should be tied where they cannot reach them.

*Pigs.*—Pigs should be washed and groomed, as, like the other stock, no matter how superior an animal may be, it would lose points if covered with dirt or had a scaly or scabby skin. A good wash with brown soap and a little Jeyes in the water, then a good rubbing with a dry cloth should be given for two or three days before the Show. See that your pigs are well-shaded at the Show.

*Dogs.*—Dogs should be washed, and groomed also, and should have a good collar and chain : if they are given to biting they should also have a muzzle. Care should be taken to enter the dogs in their proper classes. The Prize Lists generally call for certain pure breeds such as Mastiffs, Fox Terriers, Bull Terriers; and it is not sufficient that the dog's father or mother, or grandfather or grandmother may have been one of these breeds. A dog is not eligible for one of these classes unless it is *absolutely pure-bred.* There are usually classes such as "Any Other Breed" in which breeds of dogs which have no special classes can be entered. There is also usually a "Watch Dog" class, in which large mixed-bred dogs of all kinds can be entered; and dogs entering in other classes cannot be entered in this class; *i.e.*, if for instance, an owner enters a Mastiff in the class for that breed, he could not also enter it in the Watch Dog class.

*Note.*—The word cross-bred or cross-breed in this connection, has no reference to the dog's temper, but means a dog of mixed breed, or of no special breed. I told an exhibitor once that her dog was not a Fox Terrier, although entered in that class; but that it was a cross-bred dog. "Cross!" she said, "why its the crossest dog in the Show, and could bite and fight anything!"

*Rabbits.*—Rabbits should be washed and brushed before being brought to a Show. The Prize Lists usually ask for one pair, and

that means a buck and a doe. They should be brought in such boxes that if the wire cages usually provided by the Agricultural Society, run short or are not forwarded, they can be seen and handled by the Judges without difficulty. A large box with a wire front, and a door so that the Judge can put his hand in the box and handle the animals, is suitable. There are usually classes for Belgian Hares (which are simply a large and fine breed of rabbits, brownish-grey in colour), and for "Common Rabbits." To be eligible for the first class named, the animals must be pure-bred Belgian Hares ; it is not sufficient that the father has been a Belgian Hare ; both parents must must have been pure-bred.

*Poultry.*—At large Shows classes are provided for most of the different breeds, and like the dogs, it is not sufficient that the father or mother or the grandfather or grandmother might have been a pure-bred Indian Game or Minorca, or Plymouth Rock, or Orpington, to entitle the progeny, after being crossed with other breeds or with common fowls, to be entered as pure-bred. There is usually a class provided for Cross-breeds and there is always a class provided for "Common Fowls." There is no section of a Show where there is more trouble given to Judges through exhibits being in wrong classes, than the poultry section. A pure-bred fowl means that the father and mother must have been pure-bred specimens of one breed, not crossed with any other breed. Fowls should not just be picked out of the yard and brought to a Show in any sort of condition. Their combs, wattles, and legs should be cleaned with soap and water ; and it is no use bringing fowls to a Show when they are only half-grown. *A pair means a cock and a hen, not two hens or two* cocks, except in the class for Table Birds when they can be of any sex.

*Bees—Classes are usually offered for "Extracted Honey, put* up for local sale,"—and this should *not* be put up in dark bottles, or bottles with a piece of paper or plantain trash stopper ; clear bottles with a good clean cork and a neat label should be used. Jars are still better, but on no account should the name of the exhibitor be on the bottles or jars at the time of judging. After the judging a card can be put on for advertisement and selling purposes. In exhibits of Beeswax the natural yellow colour is what is preferred, and it should of course, be pure and clean. It is a wicked thing to put anything in the wax, such as tallow or flour or meal to make it weigh more, and this is easily found out. The form of the wax for an exhibit does not matter much ; but it is no attraction to be made up in any fancy form ; it should be shown just as it is sold commercially. A square block is the best of all.

(The preparation of Agricultural Products for Shows will be dealt with in next number).

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When a friend deals with a friend let the bargain be clear and well penn'd, that they may continue friends to the end.—Franklin.

## PRIZE HOLDINGS COMPETITION.

### Report of Judging in St. Thomas.

In company with Mr. Briscoe I was engaged from November 1st to 20th in judging the holdings entered for the Prize Holdings Competition in the parish of St. Thomas and we beg to submit our report as follows :—

1. There were 51 holdings entered for the competition. Of these 37 were judged, 1 withdrawn, and 13 had to be abandoned on account of the heavy damage sustained by the recent weather. We made every effort to reach the districts where the remaining 13 holdings were situated but found it impossible. We had therefore to abandon the idea of judging and we request the Society to return the entrance fee of those competitors. The 37 holdings judged were so seriously damaged as to make it impossible for us to form a fair estimate of the condition of the places previous to the storm and in each case where necessary, allowance was made for the recent damage. The itinerary for judging had been carefully arranged and there was every indication of an interesting and successful competition had it not been for the heavy downpours of rain from the 5th to Friday the 12th. After the rains judging went on with extreme difficulty. In order to get to the Mount Lebanus and Somerset districts we had to leave our horses and cross the river by rope, at one time we had an exceedingly dangerous ride over the hills, the roads being blocked by landslides.

2. As I did not judge the holdings in the last competition it is impossible to note definitely the amount of progress made on the individual places, but undoubtedly there has been a great deal of work done. There were 19 more entries this time than last year. A good deal of attention has been paid to the gates and fences. Sanitation also seemed to receive a good deal of attention. One was not only glad to see the new and substantial cottages but also how clean the old ones were kept. The Instructor and all connected with him in the work should be congratulated on the amount of real progress made. Mr. Briscoe has evidently a warm place in the hearts of the people of St. Thomas. This he has a right to expect, as with his genial manners and other good qualities he spares no time in his efforts to assist them agriculturally.

The general average of marks attained is somewhat below the average attained in some of the parishes. This is due to the fact that little attention is paid to stock raising. Although it is not adopted for this purpose a good deal could be done especially with small stock. We notice a very useful type of brood mares in the Cedars Valley district and these mated with a suitable horse should produce useful buggy ponies.

In the first class Mr. James Spleen wins the first prize, he also won the first prize in the last competition. This gentleman has an interesting holding with a good variety of crops. Mr. David Grant, the winner of the second prize, has a fine coffee cultivation but he

needs to pluck up courage and thin out the trees. Mr. W. A. Cann of Trinity Ville, entered his five acres of permanent crops, taking advantage of rules 5 and 8. He was, however, outclassed by his fellow competitors. In the second class, Mr. Richard Barnett, who won first prize, has apparently been settled on his place for some years. It is very satisfactory to notice these well-established holdings being kept up from year to year. Mr. W. T. Hall has moved up from 4th place to the 2nd place ; this is quite as it should be. The third prize was won by Mr. George Telfer, who has some very neat fencing. His permanent crops are also well kept, but need thinning out. Mr. Nathaniel McCatty who scored the lowest number of marks, is apparently a new comer. He is doing good work.

In the third class Mr. Edmund Douglas the first prize winner, was fourth in the last competition. He has an extremely neat and good holding. The second and third prize winners also had extremely good holdings. In this class we beg to recommend three special prizes of 4/- each for good general cultivation. We beg to express our thanks to the Secretrries of the different Branches, the ministers and others who assisted in advertising the competition and who in so many ways assisted us at the time of judging.—(Sgd.) E. ARNETT.

(Particulars of the points awarded will be published later.—ED.)

## HORSES.

### THE THOROUGHBRED: PAST AND PRESENT.

IN the early half of the eighteenth century, not long after York Races were removed to Knavesmire, a horse named "Infidel," owned by Mr. Bethell, won one of the Great Subscriptions at the York meeting. These Great Subscriptions were, in those days, when there were no classic races, the most important events which were decided during the racing year, and were looked forward to with great interest, and "Infidel's" victory at York stamped him as one of the best race horses of his time, for it was a time when handicaps were unknown.

It is not necessary to follow the career of this son of Pagan on the Turf. He ran several times with varying fortune, and at last was sold to someone in the North whose name I forget for the present.

In his new owner's hands he was used as a hack, and finally he was matched against time to trot fifteen miles within the hour, which he did on the Newcastle and Carlisle road with some minutes to spare. He afterwards stood as a hunter sire near Tadcaster.

I have mentioned "Infidel's" performance, not because it was such a great one in itself, though if one comes to think of it, it was a fairly good one, but to emphasise the all-round character of the thoroughbred in the eighteenth century.

If a classic horse were to do such a thing as to trot fifteen miles within the hour on the hard road in these days, there would be a lot

of talk about it, and it must be borne in mind that "Infidel", as the winner of a Great Subscription, occupied something like the same position as a classic horse.

But at that time nothing seems to have been thought of the performance, for there is no comment made on it in contemporary records. It is simply said to have taken place—that is all. From *this it is fair to infer that the thoroughbred in those days was looked upon as an all-round horse—not merely as a race horse or a hunter.*

The thoroughbred of the present day would, if given the chance, prove an equally good all-round horse as his predecessor of 160 years ago, I quite believe.

The immense increase of racing, and the development of one of his characteristics in consequence, has done much to impair his general usefulness, and has caused the prejudice which exists against *him in some quarters.*

Nor is this prejudice altogether to be wondered at. The average two or three-year-old in training, with his light bone and his *appearance of "legs and wings," is not the sort of horse that is* likely to strike the man who wants a horse to ride and run in his dog-cart. But give the thoroughbred the same chance to grow and develop that the ordinary light horse has; give up that forcing into premature maturity which is now the salient feature in the management of young blood stock, and we should have a very different animal, and one which would, I think, be a very useful horse, and would do all the work required of a light horse in a satisfactory manner.

The temptation to breed for speed and staying power, and to neglect other important points, is a strong one. But I think if a man selected a few strong thoroughbred yearlings with judgment, taking care always to buy them of a powerful strain, he would be able to get a few very useful mares together at a small initial cost, and would find his venture a remunerative one in the end, if he managed them well.—The Looker On. (*From Farm, Field and Fireside*) London.

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## THE STALLION—SIR GERALD.

This Stallion is now 15 years old; he is in fine fettle and getting better stock than ever. Every prediction of those who blackballed him for many years after his introduction here has been belied. (1) They said he was a mongrel and his progeny would be nondescript, with no style or form. On the contrary, it is noteworthy that you can spy a "Sir Gerald" in the distance by the form, and almost every horse that has an exceptionally fine neck and shoulder and fine style and pace in harness, people say "That is a 'Sir Gerald.'" No single stallion in Jamaica has ever stamped his *individual form and style* on his progeny as much as "Sir Gerald." (2) Because he was not a big horse—and the usual way of counting size here is in the height from the ground, no matter the length of

leg, or size of girth, a great fallacy—they said he would breed rats. However, in spite of being put to ordinary-sized mares, he has bred more colts over 14.1 than under it, and there are many 15-hand carriage horses by him of great style and substance being used now. (3) Then later on when his progeny were appearing at Shows and lifting prizes all along the line, and because they were remarkably well-grown and stylish for their age, it was said "Oh, they were stuffed with feed," —and this by men who bred thoroughbreds, and who were themselves feeding colts nine and ten quarts of oats per day.

We know many of the "Sir Gerald" breed, and we have only known of a very few that have got anything extra in the way of treatment such as most thorough-bred colts get,—most have been raised on grass until broken, then fed on two quarts of grain a day.

There has been no end to the ill-natured criticisms made on this pony stallion, but time has shewn the wisdom of those who chose him and brought him here. He is not a race horse and is not meant to breed race horses. Race horses are essentially gallopers, trained for galloping for generations. It is an exception to find race horses as bred in Jamaica that have the conformation for good carriage horses. A carriage horse is essentially a trotter and must above all things (second to good feet) have a good shoulder to carry a collar. Short legs are an advantage. It was thought that a cross between a stylish, short-legged, Welsh pony of great substance, and thorough-bred mares, would produce typically good carriage horses for our conditions. Unfortunately, owing to the prejudice against the stallion the mares put to him have not been chosen judiciously as a rule. Everyone knows that careful choice is made of the particular stallion, thorough-bred mares are put to, so that they may "nick" together. Everyone knows also that in spite of the many thorough-bred mares and the many thorough-bred stallions in the Island, and in spite of the great care and feeding that likely colts get, how very few realise expectations in turning out fast enough and strong enough to be anything of note. Scores every year are relegated to obscurity and become ordinary riding horses or harness horses. It has been a practice to compare the progeny of the one stallion "Sir Gerald," mated to mares indiscriminately, with the choicest harness horses resulting from the use of the choicest stallions and mares in the Island.

Everything that we claimed for "Sir Gerald" has been fulfilled to the utmost. If he is mated with judgment he will produce good, sound, strong, docile, buggy horses of high class, with such bone and substance that they will carry harness without rubbing and galling all the time, and they will stand more steady work on ordinary feeding than the majority of horses.

"Sir Gerald" himself has never been ill, never seems to get off colour, and all the time we have known him has never had a drench. He is remarkably docile and can be ridden bare back up to a mare by those who know him. Some of his detractors—few of whom knew anything about him—said he was a bad-tempered beast

— that was bad temper in the man. For a stallion that has been knocking about the country in different parts, under different conditions with different stud-masters and not always used well and never getting high feeding,—our allowance is from four to six quarts of grain a day, according to number of mares to be served,—he is a most remarkable animal, a first-class riding horse himself and as sure-footed as a goat.

Having handled him longer than any other person, we have found him easier to keep and harder to knock up than any stallion we have known. A sire with such a sound constitution, so hard and clean in the feet and legs is invaluable.

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The stallion "Sir Gerald," will stand for service for season 1910, at Pepper Pen, St. Elizabeth.

## AGRICULTURAL INSTRUCTORS AND THE COFFEE INDUSTRY, ETC.

When the first local Agricultural Instructors were appointed, the districts chosen for the first trial were St. Ann and Manchester, and the main object was to arrest in these once great coffee-producing districts, the decay of the coffee industry. Coffee was being abandoned wholesale, large properties had been flung up, and small growers were following. We have followed this work very closely, very jealously, and though there was opposition, indifference and apparently little progress to justify the expenditure on Instructors,—trifling as this expenditure was at first, and still a trifle compared to the interests at stake,—yet little by little, step by step, the pegging at it process won out as it will always win out. There was talk at first of improving the quality of the coffee by better methods of curing, but we soon saw that the ordinary methods of buying did not encourage settlers to spend time and labour over securing quality, and that, at any rate, the main thing was to get plenty of well-grown coffee first. More attention was therefore directed to getting old coffee pieces taken up and renovated, thinning and pruning and manuring were constant themes, and slowly have had effect. The work of the local Instructors at first was scrappy, they had to secure the attention and confidence of the people, their whole time was not employed at the work, and later when their whole time was engaged their districts were so very large that lessons requiring rubbing in were forgotten before their return to a district. However, we had patience; the work of Instructors required to be justified to the public and the Legislative Council; Instructors not being found ready-made—(the work being of a peculiar and exacting nature requiring patience and persistence, tact and skill; not easily understood, not readily grasped, and really difficult to handle with satisfaction to all concerned, small cultivators principally, and to the great body of taxpayers generally),—also had to be trained and developed. There

has been enough experience and enough result now to point with some degree of satisfaction to what has been done by the Agricultural Instructors and the Agricultural Society. If there has been little apparent progress from year to year, compare 1897 with 1907 even though in 1903 there was a hurricane and in 1907 an earthquake and drought. The Agricultural Society started active work in 1897. There are now only three large coffee properties left in Manchester, yet the coffee produced in the parish in 1907-08 despite drought (this year owing to a large crop, it will be double) was not less than ten years ago, while there are paid for Produce Licenses in that parish £845 10/. For the nine months ending 31st December, 1909, the amount was £944 10/-, a large increase. Now the cost of the Agricultural Instructor to the parish of Manchester was only £150, as his salary and travelling expenses as Instructor for Manchester and St. Elizabeth is only £300. Surely at least the amount of the Produce Licenses less a portion for collection, could very well be devoted to agricultural development. The grant to the Agricultural Society was £2,000 last year, which, divided between 14 parishes, gives a cost of £143 to each parish.

In the case of St. Ann the results have been pretty much the same. There are no large coffee properties left there, yet the production of the parish has not been diminishing these last four years. Abandoned roadside pieces have been taken up, penned with stock, and made very productive, while less of the backland renting at the expense of frontland cultivation is taking place. The amount collected for Produce Licenses in St. Ann for the year ending 31st March, 1909, was £523 10/.

In the case of Trelawny we have a parish with a hinterland, part of which was in times past, famous for its fertility and its productions,—the Ulster Spring district. This district went down agriculturally with the fall in the price of coffee, ginger and sugar. It has, however, of late years, picked up greatly; bananas are grown to a large extent, and it is a marvel to watch the long trains of carts on Mondays and Tuesdays of each week, going down the long hill to the shipping port;—cocoa is being grown too and for both crops in the region around and beyond Ulster Spring and Albert Town, there is room for a great development. There is fertile soil, beautifully watered, a seasonable climate, while it is an absolute necessity that the people who live there and have hitherto depended upon ginger, cane and provisions, substitute for these to some extent, staple crops—cocoa in the valleys, coffee on the hillsides, and bananas. We are of the strong opinion that if close attention could be paid to these parts by an Instructor, a few years would see such development in staple crops as would recoup the country for the small expense, a hundred times over.

Clarendon again is a composite parish, coffee and cocoa grow amicably together over most parts of it, one industry needs to be kept in life, the other needs to be pushed into life, both have been in a very weak state and the parish has only had a very small share of instructural work in the past.

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The development in growing vegetables through the Island has been very great, in Manchester and the hills of St. Andrew more particularly. There could be a greater development in the Port Royal Mountains, both for the good of the cultivators there and the benefit of consumers in Kingston. But this branch of work needs special looking after,—requires very close and particular attention and quick following up.

The parishes more in touch with seaports and growing bananas largely, have developed much as a result of the demand for bananas, and as settlers there have nearly all been closely associated with large estates, working on them at times, they have adopted estate methods to some extent—but only to *some* extent. In the direction of drainage and keeping up the fertility of the soil, much improvement is needed. The planting of more cocoa by careful methods and especially the better caring of growing cocoa trees, requires the most careful attention now that diseases of cocoa trees are increasing. St. Mary and Portland are well looked after now. St. Catherine is the largest parish in the Island, yet has only had a half-share of the half-time of an Instructor. For Produce Licenses alone it yields in revenue £461 ; it had for its share of an Agricultural Instructor in 1908, £125 devoted to it.

St. Thomas has been a backward parish, and has not been in a position to share in the benefits of the railway for which it helps to pay, nor of the Direct Line for the subsidy to which it has paid its share, so it has been arranged to spend more in developing its agriculture. It will have—all going well—a share of two Instructors and a special Assistant Instructor devoting himself to the cocoa industry.

Then the dry districts of Manchester and St. Elizabeth have had for six months past as a special Instructor on trial, one who has been a successful cultivator by methods adapted to the circumstances of the district. A start only has been made, little could be done in six months, except to make a beginning with the new lines of work, in preparing experiment grounds, for which the best planting season is only now coming. These districts require careful handling, different from the seasonable parts of the same parishes, and we think it will turn out a good plan to separate the divisions. It will require patience and the same pegging-at-it to see the results of the experiment anyhow.

The western parishes are now going ahead in the development of cane-growing, and there has also been steady development these last few years in the growing of bananas and cocoa. We could see great room for these industries among settlers in the valleys of Hanover; only a beginning really has been made, but if the people are encouraged and stimulated by the constant presence and help of an experienced Instructor, exports of bananas and cocoa in the next three years can be doubled.

We think it is within the power and capabilities of an active, interested and skilled Instructor, to show improved results in actual crops produced, now that a strong foundation has been laid to the

work, now that so many settlers are interested enough to belong to Agricultural Societies, to be keen on getting their AGRICULTURAL JOURNALS, to be eager to hold their own little Shows, to be demanding the services of Agricultural Instructors, to be writing letters for advice on their live stock, on their trees that are diseased, purchasing seeds and plants, even growing cowpeas as green dressings. A continuation of the same building-up system, with more builders available will yield still more solid results in another five years. The coral insect works slowly, but it works patiently, surely, and builds layer upon layer, not shooting up pillars in haste to reach pinnacles.

## POULTRY NOTES.

GEESE.—Geese will continue to produce eggs profitably until an advanced age (we have known them nineteen years old with an average of fifty five eggs each per year during the previous five years), and for sitting purposes the eggs of mature birds are much more reliable than those of young stock—the risk of infertility is reduced, and the vigour and hardiness of the goslings is increased—therefore rearing is easier and the profit more assured. The breeding pen should consist of a gander and two or three geese; when the geese will lay if they can produce (if not allowed to sit) an average of from fifty to sixty eggs in a season. An ordinary hen will cover four or five goose eggs, ten being a suitable number for a goose; the period of incubation is thirty days. When the laying season approaches a rough nest should be made in a convenient place, and provided with an ordinary nest egg. If this is not done the eggs may be dropped anywhere. It is necessary that the geese should have access to water not only for swimming but also to ensure fertility in the eggs. The only supplied food necessary for the stock birds is a small allowance of soft food in the early morning, and a sprinkle of corn when they return from the field at night; even this is not always required.

*Breeds.*—The best breeds for purely table purposes are the Embden and the Toulouse, or a cross between the two. The Embden has white plumage, flesh-coloured bill, orange shanks, a square, deep-set body and a tall upstanding carriage; the average weight for an adult gander is 20 lb., and for a goose 18lb., but much greater weights are attained. The Toulouse is of a dark grey colour on the upper part and a lighter shade on the breast, which gradually merges into the white of the under pars; the bill is of a red flesh colour and the legs orange-red; the body is full and compact, with a convex back, and the weight is generally greater than that of the Embden.

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RESULTS OF OVERFEEDING WITH CORN.—A very common mistake made by poultry keepers is that of feeding their birds on too much corn (maize). Too much maize is not good for fowls, as it

brings on liver disease sooner than anything we know. It makes the bird too fat internally, and also makes blood too fast.

Fowls that are fed liberally upon it are lined with yellow fat, especially in the abdomen, sometimes to the thickness of half an inch. The consequence of all this is that the egg organs become so weak that the hens lay eggs without shells.

These are not the worst effects of feeding on maize, as birds that are so treated are generally in a weak condition, and so they are susceptible to many other affections and diseases, especially cold and roup.

It is not always liver disease that actually kills them, but because of the derangement of that organ the birds get into such a state that diseases soon lay hold upon them and overcome them, because the birds are too weak to withstand the ravages of the disease.

In some instances where we have found cases of roup that have proved to be incurable, we have seen on examination that the liver was diseased, being full of tuberculous matter and white spots upon it. Sometimes these spots are only as large as a pin's head.

In most cases where roup has not yielded to treatment, we have found this tuberculous liver existing, and, in some instances, tumour, the growth of which the maize is very likely to stimulate.

In cases where only ordinary scrofula is coming on, tuberculous substance forms, at first in small yellow spots, and these grow rapidly, so that in a very short time they are a quarter of an inch through, and the liver more than three times the ordinary size.

We have weighed a liver of from nine to eleven ounces, the normal weight being from two to two and three-quarter ounces. Another cause of a great deal of liver disease is in-breeding. More fowls die of this disease than the others put together.

Insufficiency of small grit, feeding on Indian corn, in-breeding, and bad ventilation are the four greatest foes to success in poultry yards. We have known instances where farmers have used maize for years together, and it has had such a bad effect upon the progeny that scarcely a chicken of all that were hatched lived. They died, many of them, when from four to six days old, some living until they were from three to six weeks old.

Poultry keepers use maize (corn) because it is a cheap food, and fowls seem to prefer it to any other, but they have to pay very dearly for their fancy, and only the bare sad facts will convince some of the danger of using too much.

A little corn for a change does not hurt the fowls, especially in the cold weather, but as a regular diet it should never be used.—*Farm, Field and Fireside*, England.

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This all refers to a monotonous diet of American corn which is much more starchy than Jamaica red corn ; still a constant diet of the latter does not give the best results. At the same time it is often difficult to get any other food convenient enough. In this case we recommend parching the corn and feeding it in that form for three or four days at a time.

FEEDING.—During these last three years of drought, grain foods for all stock have been very expensive. Our great standbye "country corn," has been scarce and dear and we have had to trust largely to imported grain and meals which are dear, and judging from results, not of good quality. This may be accounted for partly by the foods not being fresh. Country corn at 5/- a bushel is expensive enough but *imported foods are often dearer and not so good.* We shall never make poultry rearing a success financially until we solve the problem of cheap feeding. In good years with country corn at 2/6 a bushel, and in certain districts where plenty of bananas and coconuts are available, poultry can be raised remuneratively. But in general our feeding is too expensive. A penny per head per week should be a good allowance for feeding for annual poultry at large, but for stock birds kept enclosed, should cost a half more. That does not allow much margin unless the hens are extra good layers.

* * *

"Perhaps it may interest you to hear that a young turkey hen of ours has laid 47 eggs, only stopping a day occasionally between. She is at last sitting,—fowls having hatched the first eggs."—(MRS.) LOUISA STEWART, Armagh, Falmouth.

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## PRIZE HOLDINGS COMPETITION.

THE following is the programme for judging the Portland holdings :—

| | | |
|---|---|---|
| February | 17—Thursday | Moore Town |
| ,, | 18—Friday | Sherwood Forest |
| ,, | 18— ,, | Zion Hill |
| ,, | 18— ,, | Harmony |
| ,, | 18— ,, | Boston |
| ,, | 19—Saturday | Black Rock. |
| ,, | 19— ,, | Fair Prospect |
| ,, | 19— ,, | Hartford |
| ,, | 19— ,, | Long Bay |
| ,, | 21—Monday | Belle Castle |
| ,, | 21— ,, | Haining |
| ,, | 23—Wednesday | Park Mount |
| ,, | 24—Thursday | Snow Hill |
| ,, | 24— ,, | Mount Pleasant |
| ,, | 25—Friday | Maidstone |
| ,, | 25— ,, | St. Margaret's Bay |
| ,, | 26—Saturday | Hope Bay |
| ,, | 26— ,, | Black Hill |
| ,, | 28—Monday | Cherry Hill |
| ,, | 28— ,, | Charlestown |
| March | 1—Tuesday | Tranquility |
| ,, | 2—Wednesday | Skibo |
| ,, | 2— ,, | Mount Hermon |

| | | |
|---|---|---|
| March | 3—Thursday | Claverty Cottage |
| ,, | 4—Friday | Bybrook |
| ,, | 8—Tuesday | Balcarres |
| ,, | 8— ,, | Lower Fairfield |
| ,, | 9—Wednesday | Fairfield—Bungoo Ridge |
| ,, | 10—Thursday | Birnamwood |
| ,, | 11—Friday | ,, |

## COMMENTS.

HINTS TO EXHIBITORS AT SHOWS.—Some definite instructions for intending exhibitors to follow in preparing their stock or products for Shows and for some guidance how to act on the day of the Show, have long been asked for. The hints published in this issue were prepared over three years ago for publication in the JOURNAL for January, 1907—the JOURNAL which with all the copy, was destroyed in the fire after the earthquake on 14th January, 1907. The "Hints" have been submitted to the Agricultural Instructors for suggestions and revision.

Hints to Show Committees were published in the JOURNAL for December, 1909.—Judges at Shows can benefit materially by a perusal of both these papers.

* * *

COTTON.—"About 40 bales Barbados Sea Island Cotton have been sold since our last report, chiefly at 18d., with one superior lot at 19d. The market is firm for Sea Island descriptions, owing to the high price ruling for Egyptian. Sea Islands are undoubtedly relatively cheaper, but there are very few consumers who can substitute them for the best Egyptian."—*Market Reports.*

* * *

SOY BEANS.—We should like our readers to try packets of Soy Beans. The green variety looks like smooth "English" green peas, and tastes much like them. There is also a brow nvariety which is hardier. They are great drought resisters yet can stand heavy rains.

We have grown them as a garden crop successfully in the mountains, but not yet in the lowlands with any success, yet we think they can be grown. We do not think they would do for green dressings in the way Cowpeas, Jerusalem Peas and Velvet Beans can be grown; but as an addition to our garden crops they would be exceedingly useful. These peas are the richest of all legumes; they are rich in protein or the flesh-forming element, and also in fat, and are the standard nitrogenous food of the Japanese.

* * *

PRICES.—We have all along had continuous complaints from smaller planters of buyers getting too much the better of producers in almost every line of produce. There is no doubt this was the case years ago, but of late years there has been an evening up and last year producers had the best of it; this year it looks like this

again. There has been some considerable improvement in the quality of produce offered but it is not general yet, as much owing to the system of buying as to the carelessness of small settlers. We have often been greatly surprised at the willingness of members of Branch Societies to take special care with their products if only we could assure them it would pay them to do so. The recent articles in the JOURNAL on this subject created much interest, but as in other cases, no tangible results are apparent yet. Our system of buying is bad and this handicaps us and our Instructors in our efforts to get *quality* by careful curing. However, our efforts to increase the quantity of produce per acre by thinning out, pruning and especially manuring the old red soils, are having effect in the direction of better quality too. The curing is still the stumbling block.

* * *

CURING COFFEE.—We are glad to call attention to the article on "The Curing of Coffee," published in this JOURNAL. The writer of it is thoroughly practical, and knows every detail of the business intimately; so that all the processes described can be depended upon to produce the results described.

* * *

PUTTING UP OF PRODUCTS.—The West India Committee Circular has been calling attention to the packages containing West Indian products.

We have improved much in our methods of exporting our products and in care and preparation of those products, but we have still very far to go before we are good enough either way to compete with some of our foremost competitors.

Oranges are still badly put up. The article on "Orange Shipping" in the JOURNAL for September, page 323, calls for the close attention of everybody engaged in the orange trade. It is remarkable, however, that sometimes whole consignments of fruit are spoiled because of the very non-attractive labels and wrappers used. The appearance of a package means a great deal in attracting sales, not only the outside of the package but the appearance of the fruit when it is opened up.

Years ago we contended against the putting up of our honey,—and often high-class honey at that,—in old kerosene tins. We do not think that this is ever done here now,—new tins are used made expressly for the purpose. We know many exporters of honey who make their own casks, new and clean, and ship in that way. Yet others do not, and still use old casks very dirty on the outside, and perhaps not over-clean on the inside before the honey is put in.

* * *

SOME BOOKS TO READ.—We have in stock the following books, booklets and pamphlets, which, those who have not got them already and who are interested in the subjects should not fail to get. A full treatise on Cacao, by Olivieri of Trinidad, price 6/-; the Future of Cacao, by H. Hamil Smith, London, price 1/3; the Grafting of Cocoa, published by the Imperial Department of Agriculture, price

4d. post free; free pamphlet on Diseases of Cocoa; Suggestions for School Gardens, by J. R. Williams, Superintendent Inspector of Schools, price 1/- post free,—(this book contains much information on most Jamaican products and on diseases of plants and insecticides as well, and should be in the hands of everyone); a pamphlet on "Goats in Jamaica," by John Barclay—free.

* * *

HANDBOOK.—We have received a copy of a very useful little book entitled, A Commercial Pocket Book of Jamaica, compiled by Charles L. Burrowes, Kingston, the price of which is 1/. This can be had from the office of the *Jamaica Times*, and is so very useful that everyone should have it. It gives particulars of our imports and exports, it gives the names of merchants in all lines of goods, names of the Steamship Companies, and Steamship Agents, not only in Kingston but all over the Island; and of freight and passenger rates; gives a note of the Customs Tariff, postal information, list of the Post Offices, and of the Railway Time Table, Stamp Duties, list of Consuls, Cable Rates, etc. Altogether a handy book and of a size to carry easily in one's pocket.

* * *

PATENT AUTOMATIC WATER FINDER.—On page 242 of JOURNAL for July, 1909, we published an article giving the particulars of a simple apparatus by which any unskilled person might readily ascertain where subteranean supplies of water existed and which indicated the depths of same. This article created some interest and we have had enquiries for the address of the makers. These instruments can be obtained from W. Mansfield & Co., Creewood Buildings, Brunswick Street, Liverpool. They make a water-finder capable of locating subterranean water at depths to 200 feet for £30, packed and delivered f.o.b., and a larger instrument which can indicate water to a depth of 1,000 feet for £50 complete. There should be demand here for such an instrument, and probably one or two imported would serve the needs of the Island as they could be hired out.

* * *

GOATS.—We have always been strong advocates of people keeping small stock wherever their circumstances enable them to do so. Apart from the little profit and convenience there may be in the keeping of one or two milch goats by people in towns, many people like to keep a little stock as a hobby, and this is good for them and for their children. But we have also been just as strongly insistent on this point—that all animals must be kept in their proper place—and the streets of a town are no place for goats, smart as these animals are in looking after themselves. In the city of Kingston it is now proposed to prohibit the keeping of goats within the city limits as pigs have been prohibited some years past. We can understand that the keeping of pigs in a backyard might raise a nuisance, as people have got it into their heads that pigs revel in dirt and thrive best among muck, though this is not at all the case.

Goats are rather cleanly animals if they get a chance, and we do not see why anyone should not be permitted to keep a goat in a yard, or on a little piece of grass such as many houses have around them. Milch goats are just as important as milch cows and the best milch goats in the country are to be found among those raised right in Kingston, for where in other circumstances people would feed their yam peelings and other kitchen waste stuff to pigs, these are fed to goats, so that they grow quickly and thrive well, and when cared and milked through several generations, result in really good milch goats. We are strongly of the opinion that if goats are prohibited from being allowed to run in the streets, and the law is strictly enforced by the confiscation of all goats found at large, this will debar the keeping of goats, casually for mutton purposes in towns, which goats are cheap and are nuisances; people will only keep really good goats for milk when these have to be confined to their premises.

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PRIZE HOLDINGS COMPETITION.—The judging for St. Thomas took place in November—awards were made and were confirmed at the December meeting of the Board of Management. We hope to visit the parish with the Instructor in the end of January and distribute the prizes. The judging in St. Catherine takes place in the early part of this month, and the judging in Trelawny in the latter part of this month; the judging for Portland takes place in February. It has not yet been definitely settled what parishes will be taken next year, but the natural order of rotation should be St. Ann, St. Mary, Manchester and Hanover.

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JEYES' FLUID.—The word "Jeyes" is a standard one and is a household word in Jamaica as in many other countries throughout the world. It is the best known preparation of its kind, and most other preparations make reference to it in making comparison. With such a number of similar preparations in the market, however, it is very easy for readers to make their own comparison by testing which is the most effective and goes further at the money. Read our advertisement of "Jeye's."

* * *

CASSAVA PRODUCTS.—It is curious how great a prejudice there is against using native-made preparations, which are made on the same lines as those imported. There was perhaps reason for this in that such things were often in the past carelessly prepared and put up in receptacles that were certainly not attractive, whereas as is the case with most products put up in packages for sale, the packing and the labels help to sell the article. The number of cereal and similar preparations imported is very considerable, and they seem favourite articles of consumption. Yet from our own cassava a large number of very palatable preparations are being put on the market, and yet we know from previous experience that it will be a difficult thing to get people to take them, no matter how nicely they

are put up, nor how palatable they are, nor how nutritious they are, nor how easily cooked they are. We always remember vividly the case of Farine, as made by the Society in St. Elizabeth *versus* cornmeal. The public would have none of it although it was very palatable and undoubtedly most nutritious and easily digested, and it would have been cheap considering that a small quantity went a long way, but in the comparison with this food and cornmeal this was never taken into account when it was tried in public institutions. However, from the Bengal Cassava Factory, there are very nice cassava preparations in the market, to which we have before referred in this JOURNAL; Mrs. Fray of Spring Plain Factory, near Clarendon Park has, too, been doing a small export trade in cassava cakes for a good time; and she now has also put on the market a Farine for making porridge, and a tapioca, which ought to be used largely. She also prepares a Cassareep Sauce at 1/- per pint bottle, and as this is a concentrated sauce it goes further than ordinary sauces. Tozer & Co., Kingston, stock these preparations.

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PRODUCE LICENSES.—It is a curions thing that the parishes supposed to be not in the most flourishing condition—those parishes of the red soils which formerly depended largely on coffee and oranges, show the greatest amount collected for Produce Licenses. These parishes still depend largely on coffee, and the coffee industry is really the only one that the red soils can depend upon, so it has been worth the effort of Instructors all along to try to help this industry. We think they have done so. It may be a co-incidence, but at any rate, the amount for Produce Licenses collected in Manchester for the year ending 31st March, 1909, is greater than all the other parishes—the amount is £845 10s.; for the nine months ending 31st December last, there has been an increase of £100 over the previous year, viz., £944 10s. St. Ann does not show as much as this, but still it is the next highest with £523 10s. for the year ending 31st March, 1909. The amount for St. Catherine is £461 10s., and for Trelawny £158 10s.

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TO ALL PLANTERS.—Remember to plant Cowpeas through fields of young bananas as the suckers are planted; also through the young canes, through the orange grove, through the cassava.

Here is the result of an experiment. The yield of corn was 31½ bushels from an acre of land where Cowpeas had been planted, and the crop of peas taken off but the dried vines turned in; on an acre of the same land without the Cowpeas proceeding, the yield was 8 bushels.

We have them in stock.

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All men that are ruined are ruined on the side of their natural propensities.—Burke.

## BRANCH NOTES.

**Central Cornwall (St. James).**—A regular meeting of this Branch was held at Mount Reece on Friday, the 3rd December, when there wer present: Messrs. J. H. Oliphant, Vice-president, in the chair; H. Q. Levy, Agricultural Instructor; Rev. J. A. McIntosh, the Secretary and eight other members. At the Chairman's request, the meeting was opened with prayer by the Rev. J. A. McIntosh, after which the Chairman made a few remarks and the minutes of the previous meeting were read and confirmed. On the motion of Mr. Kerr, seconded by Mr. Atkinson, Rev. J. A. McIntosh was elected a member of the Branch. The revd. gentleman said he was glad to become a member of the Branch as he has got a very keen interest in the agricultural pursuits of the Island, and he would encourage the members to have a practical interest in the Society, stand by the Instructor, cultivate and maintain the spirit of *esprit de Corps* and much good will be the result. The question of the falling off of the membership of the Branch was brought before the meeting, and after some discussion, the Rev. J. A. McIntosh moved and Mr. Kerr seconded, that a Special Committee be appointed to draw up a circular letter and forward one "to every proprietor of respectful standing" in the districts around, soliciting his co-operation in the effort of deepening the interest and extending the usefulness of the Society by becoming a member. A letter from Mr. Barclay *re* the addition of another class in the Prize Holdings Competition, was read by the Secretary. It was the opinion of the meeting that the classes remain as they are at present. Mr. Henderson suggested that there be a competition among those young women who had been taught the jippi-jappa hat-making through the instrumentality of the Branch, and prizes be offered. This may be a means by which they may continue to improve them. The matter was left to be considered by a Committee. The following resolution was passed by the meeting: Resolved—"That it having come to the knowledge of this Branch Society, that its name is being associated with the proposed Show to be held at Montpelier in 1910, and this Branch not having been communicated with on the subject, the Society hereby authorises Mr. J. Henderson to enquire into the matter, and to find out why the Society has not been approached." The meeting was favoured by a very interesting and practical lecture on the "Cultivation of Banana," by Mr. Levy. His facts were explicit and they were presented very carefully. At the close of the lecture certain questions bearing on the subject, were put to Mr. Levy, which he replied to satisfactorily. A unanimous vote of thanks was accorded the lecturer. After the Treasurer's report had been presented, a very profitable meeting was brought to a close.—E. S. JARRETT, Secretary.

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**Spanish Town (St. Catherine).**—A meeting of this Branch was held on Monday, 13th December, at the usual place at 7.30 p.m. Eight members were present. The President not being present Mr. William Gentle was elected to fill the position. The minutes of the last meeting were read and confirmed. All business arising therefrom was unanimously deferred until the January meeting when a fuller turn-out of members is anticipated. The correspondence was then read, and which reached over seventeen. It was decided to allow the question of goat protection to remain over for some time as the co-operation solicited was not in favour of immediate action. Letter from Mrs. K. H. Bourne *re* help of this Branch towards suppressing cruelty to animals. The Secretary replied stating that names had been submitted but up to now on enquiry, no direct instructions had been received. The Branch had received valuable help from the German Kali Works of Havana, Cuba, to which the Secretary had replied thanking the management for their kind contributions. Let-

ter from the parent Society *re* Prize Holdings Competition. It was decided that the Secretary be informed that this Branch is opposed to the intended alterations. Letter *re* the Praedial Larceny Law would be attended to at the next meeting, giving members an opportunity of selection. A letter of condolence was submitted and adopted to be sent to the relatives of Mr. C Finlayson, lately deceased, who was a very useful and active member of this Branch. This brought the meeting to a close the members having much faith in the future of the Society.—G. PERCY FONSECA, Secretary.

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**Troja (St. Catherine).**—The regular monthly meeting of this Branch was held on Thursday, 23rd December. There were over twenty members present. The President called the meeting to order and the minutes were read and confirmed. A letter from the General Secretary was read, also one from J. Hirst, Esq., Agricultural Instructor, and the Secretary was instructed to write to Mr. Hirst expressing the Society's high appreciation of his arrangements for a lecture by Mr. Arnett on the 13th January, 1910, when they would both be in the parish together. It was arranged to hold a general meeting on that evening which would commence at 5.30 p.m. The lecture will be on the care and management of live stock. The rules of the Society were next read as drafted out at the last meeting of the Board of Management, but on the suggestion of the President, discussions were left over for the next meeting, the present attendance being small. Mr. Samuel A. Schleifer was then called upon to deliver his address on "Hillside Trenching." After a few brief introductory remarks, he entered his subject and continued with much vigour, and for nearly twenty minutes he kept his audience keenly interested. He clearly explained the necessity for efficient drainage and showed how by proper methods of trenching, the great waste that is always observable on hillside lands may be checked. This he did by means of a newspaper so folded as to represent two hillside slopes in juxtaposition and running almost parallel to each other. This part of the lecture, however, was not clearly understood by some of the members and as a result, many questions were asked the lecturer at the close of his address. A warm and lengthy discussion followed. At length the President moved, seconded by Mr. H. N. Ross, that the lecturer should visit the hillside cultivation of Mr. Thos. Hammond (the chief interrogator) at 3 p.m. on the 28th inst., and there illustrate his views by practical demonstration. The lecturer expressed his pleasure to comply with this wish. A hearty vote of thanks was accorded him. Mr. Hammond thought that a savings bank should be established in connection with this Society, but after a short discussion on the subject, it was decided that the feasibility of this scheme should be considered at the next meeting of the Board of Management, while the Secretary was instructed to enquire from Mr. Barclay of some methods by which such a bank could be run. Mr. William Ferguson suggested the starting of a class of girls for the making of jippi-jappa hats. This was also left over for further deliberation at the next regular meeting, when it is hoped that the attendance will be larger. Several members were of opinion that a Poland China boar at the disposal of this Society would be very beneficial to the members. The idea was vigorously threshed out, but no decision having been arrived at it was left to be reconsidered at the next meeting, while the Secretary was instructed to write to Mr. Barclay for information regarding the acquiring of one such pig. At the request of Mr. William Ferguson and the approval of all then present, Mr. Thomas Hammond consented to lecture on the "Cultivation of Canes" at the next meeting, while Mr. A. McNeil asked of and received from Mr. Samuel A. Schleifer, information *re* the date of the next meeting of his Society, so that members of this Society may pay a complimentary visit in appreciation of the lively interest he has taken in this Society. After one new member had been enrolled and the Secretary instructed to write

to members whose subscriptions were in arrears, soliciting payment of same before the close of the year, the meeting adjourned.—A. VIVIAN HAYNES, Assistant Secretary.

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**Stewart Town** (**Trelawny**).—Between the hours of 4 o'clock and the opening of the meeting, Messrs. Levy and Arnett (Agricultural Instructors), John Stockhausen, Albert Bernard, and the Secretary met to complete the Prize List in order to submit it to the meeting for its approval. The meeting was called to order at 7.25 p.m. Mr. John Stockhausen occupied the chair. On the roll of members being called 17 members answered to their names. Mr. E. Arnett, Agricultural Instructor, was also present. Mr. H. Q. Levy, the Agricultural Instructor for the district, was unable to remain over to the meeting. The minutes of last meeting were read and confirmed. A correspondence from the Secretary of the parent Society, dated 1st December, calling the attention of all Branch Societies to the revised law on praedial larceny, was read. The subject was then discussed, and Mr. Arnett explained the provisions of the law. The meeting then proceeded to nominate one of the members of the Branch to the Inspector General of Police to be an authorised person under the law. Mr. Thomas Moreland moved, Mr. Albert Norman Bernard seconded, and Mr. William Gallimore supported, that Mr. James Campbell be the nominee. This was unanimously agreed to. The rules and prize list of the forthcoming Show were presented and adopted. It was also agreed that His Excellency the Governor be written to asking him to do us the honour of allowing the Show to be held under his distinguished patronage, and to further do us the honour of opening the Show on the 28th April, 1910. It was agreed also that circulars be sent to ladies and gentlemen enlisting their interest and co-operation in the undertaking and soliciting a subscription towards the Show Fund. Mr. Arnett brought the matter of the Farm School at Hope to the attention of the meeting. The advantages to be gained by the Island from such a school were pointed out. The meeting was of opinion that the institution is a capital one and is calculated to help in advancing the best interests of the pepole and should be supported. No other business was attended to and the meeting adjourned.—JOSIAH JOHNSON, Secretary.

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**(Pedro, St. Ann)**.—This Society held a very successful fortnightly meeting on Thursday night, 16th December, at its usual rendezvous. There were present; Messrs. E. Crosskill, President, in the chair; W.J. Francis, Secretary and Vice-President; Mr. E. Arnett, Agricultural Instructor; the Assistant and Reporting Secretary, 25 members and a large number of visitors. The meeting began with singing of song entitled "Winter's Night," and prayer by Mr. Arnett, after which the President gave his opening address. The minutes of the last meeting were then read by the Assistant Secretary and afterwards confirmed by the members. Mr. J.B. Walton then gave a reading entitled "The Spinners," for which he was heartily thanked. Mr. E. Beckford also gave a recitation entitled "Love Lightens Labonr." He was also thanked. The song "Christmas Day is Coming," was then sung by members in quite a lively manner; after which Mr. Arnett gave his usual instructive and interesting address and lecture. Rapt attention was paid to the discourses on the various topics lectured on by Mr. Arnett. He first spoke of the new appearance the Society has resumed, and the good the Society is destined to bring forth, if carried on in the right way and introduced criticism of readings, recitations, debates, etc., as an impetus to good results, and many other wise suggestions. He then lengthily and interestingly spoke on the benefits of agriculture, its importance and the absolute necessity for all agriculturists to have a practical and improved knowledge of agriculture so as to keep up with the rapid progress and strides agriculture is making. He then spent some time in dilating on the price of [illegible] and the sugar cane

in general; also on coffee and the importance of improving our coffee plantations,—encouraging members to take up the planting and cultivation of coffee on correct principles, as a very bright and favourable future is in store for this valuable article of commerce; giving full instructions as to how this may effectively be done. He also spoke of Local Show and explained how this may easily be brought about. After a lengthy address and the proper replies to questions put forth by members to him on various topics, a hearty vote of thanks was proposed, seconded and carried for Mr. Arnett. Everyone felt deeply thankful to him for his lecture and suggestions. Roll-call next followed, after which another song entitled "I don't see it," was then sung by members in an exquisitely melodious strain. The following fixtures were next arranged for the Society's next meeting:—(1) Music Lessons; (2) Debate—"Are the Manners of our People Improving." Mr. H. H. Nembhard will prove that the manners of our people are not improving, while *Miss J. Beckford will* prove the opposite. The President then gave his closing remarks, in which he thanked Mr. Arnett and wished him a safe journey home. Mr. Arnett replied suitably and then wished everyone a merry Christmas and a happy new year. After the singing of the National Anthem and the Benediction a very enjoyable evening was brought to a close.—T. A. G. Small, Assistant and Reporting Secretary.

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**Central St. Mary (Eliot).**—The usual monthly meeting of this Branch was held in the Eliot Schoolroom on the 9th December, 1909. There were present: Messrs. J. A. Banks, President, in the chair; Francis Gordon Vice-president; E. A. Gunter Secretary; Henry Taylor, Treasurer and six other members. The minutes of the last meeting were read and after a little correction, were confirmed. Messrs. James A. McGibbon, Marzinc, S. A. Grant, C. H. Powell and H. E. Vernon, became new members. Letters were read from Jno. Barclay, Esq., Mr. Wm. Cradwick and Mrs. Bourne. The subject first on the agenda was the consideration of suggestions *re* the extension of the Small Holdings Competition from 20 to 50 acres. After discussing the subject the Secretary was instructed to send the following to the General Secretary:—"This Branch feels that one who has holdings up to 50 acres, should not be considered as a small holder, and that if such a one be considered a small holder, then there should be a special class made for such, provided that such a class does *not affect the prizes of the small holders with holdings up to 20 acres.*" Passing from this the Society proceeded to nominate persons to be authorised under the Praedial Larceny Law, to arrest suspicious persons in cases of praedial larceny. Mr. Jeremiah Gordon of Eliot District, was the one nominated—the Society deciding to delay the nomination of a second till our next meeting on the 6th January. It was also decided that circulars should be sent to the members asking them to attend on that date, so as to present a good audience to Mr. Cradwick, who promises to visit the Society then. The Secretary was asked to send to Mr. Barclay the names of the officers of the Society also members who have paid up. Mrs. Bourne's leaflets on "Kindness to Animals," were distributed among the members, who were thankful for the useful helps on such an important matter, and it was thought best to decide on those that seemed to be specially useful at our next meeting. The Secretary appealed to the members of the Society to try and adopt some plan whereby the young men of the districts may be brought to take some active part in matters of interest and import. He feared that the day will come when one will be at a loss where to find young men enterprising and intelligent enough to fill any prominent position from our districts.—This question would come up again for consideration. At the request of the Treasurer, the Secretary was asked to lay before the Society its membership and financial standing. All interested in agriculture whether members or not, are asked to attend our next meeting which is fixed for January 6th, 1910.—E. A. Gunter, Secretary.

**Upper Metcalfe** (St. Mary).—The regular monthly meeting of this Society was held on the afternoon of the 15th December, 1909, in the Brainerd Schoolroom. There were present forty-one members. The President and Vice-presidents being unavoidably absent, the Secretary Mr. S. A. Schleifer, presided. It was announced that Mr. Cradwick hopes to be with us in January to help in the cocoa trouble. A letter from the General Secretary *re* Prize Holdings Competition, was read and it was agreed to recommend that another class be added for holdings of over 20 acres, provided that the sums being allotted to the three existing classes, be not reduced in order to effect the change. The Secretary then read and explained extracts from "Tropical Life," dealing with cocoa. Several members again reported the havoc being wrought by canker among their cocoa trees, and after a lengthy discussion it was agreed that all husks should either be burnt or taken to the yam fields to be there used as manure, and also that in our cool valleys plants should be put in at distances of between 16 and 20 feet instead of 12 feet. Much air and sunlight are necessary and the crowding of the trees together account largely for poor crops and the housing and encouragement of the various diseases. Dead trees must be dug up and burnt before any attempt is made at putting in new plants to take their places. It would be well also to treat such places with lime. It was next decided that this Branch Society subscribe next year to "Tropical Life," and that Mr. Allen the Treasurer, be asked to obtain lime from Kingston in large quantities for the members of the Society. The following new members were admitted:—Messrs. Franklin Duncan, James Perrin and Joseph Francis. The meeting adjourned.—S. A. SCHLEIFER, Secretary.

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**Giddy Hall** (St. Elizabeth).—A meeting of this Branch was held on Friday, December 17th, when the Agricultural Instructor J. T. Palache, Esq., was present. In the absence of the President, the Vice-president O. E. Tomlinson, Esq., took the chair. Mr. Barclay's letter on the Prize Holdings Competition was discussed. Mr. Palache suggested that three classes should be added to those already existing. One class for holdings between 20 and 30 acres, one for holdings between 30 and 40 acres and one for holdings between 40 and 50 acres. He also made another suggestion that met with great approval from all the members present, namely, that those settlers whose residences are not on their holdings, should no longer be excluded from the Competition. Many persons have only sufficient ground for a house, and have to travel far afield before they can acquire ground for cultivation; under the present rules they cannot compete, many a nice and well-kept holding is debarred from obtaining a prize. Mr. Palache has promised to prepare a form setting forth these suggestions, to be signed by the members and forwarded to the parent Society. The question of sending exhibits to Appleton Show was next brought forward, many people said they had nothing to send. The Instructor pointed out that there is always good coffee in the district, and advised that two good samples should be sent, one of clear coffee, the other of coffee in parchment. The Branch might also send cocoa and perhaps meals and starches. He also advised the people to plant good seeds—the best procurable. If they would club together, subscribing one a 3d., one a 6d., the sum of one or two dollars might easily be raised, and the Secretary could be instructed to write to Henderson or Burpee for seeds. Mr. Palache then proceeded to give his lecture—the subject being "Soil Preparations." He dwelt strongly on the necessity for forking, mulching and manuring, and blamed the careless, extravagant method of cultivation by the ordinary peasant, as being responsible for the deterioration of the land and the comparative poverty of the crops. More agricultural knowledge is needed by the people; and this is the object of our Branch Societies, to impart this knowledge. Through them information on all points connected with agriculture can be obtained from headquarters from those most competent

to give it. In concluding his lecture Mr. Palache said he wished to get up a Central Show to take place in August of next year, when he hoped the Giddy Hall, Springfield, Newmarket and Darliston Branches would combine and hold one good Show. He advised members to begin preparations at once and select samples of coffee and put them aside. Parchment coffee will keep for years and improve in the keeping. Mr. Palache then wished the Branch a happy Xmas, and a bright and prosperous new year. After the Chairman had thanked Mr. Palache for his most instructive lecture, the meeting was brought to a close.

NOTE.—The President, who was unavoidably absent from the meeting, thinks that instead of adding three classes to those already existing in the Prize Holdings Competition, it would be better to add *one* class and re-arrange them as follows :—1st—Holdings between 30 and 50 acres ; 2nd—Holdings between 15 and 30 acres ; 3rd—Holdings between 5 and 15 acres ; 4th—Holdings between 1 and 5 acres.—J. L. MAXWELL, Secretary.

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**Bull Head (Clarendon).**—This Branch met at Mt. Carmel on the evening of the 16th December last. There were present : the President, in the chair, J. Hirst, Esq., Agricultural Instructor for the district ; the Vice-president, Treasurer, Secretary and more than twenty other members. The Secretary being late, an Acting Secretary was asked to read the minutes of the last meeting. During the reading the Secretary came in and took his seat. After the reading and confirmation of the minutes, the President expressed the pleasure of the house in seeing the Secretary at the meeting and wished that his failing health had been so restored that he would never be ill again (applause). The Secretary replied suitably. The regular business then went on. Mr. May gave a very interesting and practical talk on the "Cane Cultivation." He showed where no other product was as payable as the cane and advised not to plant the "governor cane" only but to plant the various species. The "governor cane" he said did not yield as much as the "ribbon and black canes," and it did not have as strong grains as the other kinds. Mr. John Hamilton also spoke at length, emphasising the points made by Mr. May, and urged on the young men who were cultivators, to plant their canes as it was able to resist wind and drought, and to plant their canes at such a time that it would be reaped when the "big man's" crop was finised so as to get the best price. A hearty vote of thanks was moved, seconded and conveyed to Mr. May for his interesting lecture. The debate on the "Cow and the Donkey—which is the better to invest in for a young man who had only three pounds as a start," next came up Mr. Edwin Wright opened in favour of the cow. He urged that his cow for £3 could be put to the bull at twelve months, and for the succeeding 27 months he would have three calves and selling the milk at 4d. per qnart, he would have very much more than the man with his donkey. Mr. Jones then took the side of the donkey and showed that he with his three pounds, would purchase a good jenny and take his sugar and provisions to the market and hire her out and in the meantime she would be breeding. Several of the members spoke in favour of the donkey, among them was Mr. Hirst. At the close of the dabate, the President asked the members to give their votes as they thought fit. The result was that the donkey carried with a very large majority. During the debate two ladies graced the meeting with their presence—the "hat instructor" and Mr. E. A. Tomlinson. The President gave them a hearty welcome and told them the subject for debate. A letter from the Ministers' Conference requesting the Society to find out how many acres of bananas were under cultivation and how many can be put under cultivation was read. This duty devolved on Mr. Edwin Wright of May Crawle, Mr. O. Armstrong of Colonel's Ridge, and Mr. J. N. Simpson of Brandon Hill. The President then introduced the Instructor, assuring him the pleasure it gave us all of having him in our meeting. He in turn, expressed his great delight in being present and

watched the keen interest taken by the members of the Society in the debates and other matters of general importance. He urged the members to carry on a steady cultivation—not jumping from one crop to the next. He also urged the members to "put their eggs in more than one basket," but not in too many as it would be impossible to manage all at once. He advised to plant canes, coffee, cocoa, bananas and ground provisions. The tendency in the island was to give up one production for another as soon as the market value of that production failed. This he pointed out is bad policy and should not be done. He next urged that bananas be planted at such a time as to meet the spring crop and hence, if the land be well prepared say in November or December, plants could be put in from January to March, and that all things being equal, was bound to catch the spring crop and fetch the best price. He showed also that the ratoons took 14 months to come in under most favourable circumstances, hence save suckers in November and under ordinary circumstances begin to save suckers as far back as August and September. He showed that by deep trenching we could get the most out of our bananas and canes. The hat-class was next spoken about. *He urged on the parents to allow their* girls to attend the class until they could turn out a first-class hat and then we could open up a market abroad for this industry. The letter from the Secretary of the parent Society *re* the Prize Holdings Competition, was next brought up and after the explanation was given by Mr. Hirst, the house moved that a fourth class be added, provided the prize money in the three previous classes be not reduced; but otherwise for third class holdings the acreage be 1 to 5 acres; second-class 5 to 20 acres; first-class 20 to 50 acres. The President moved a hearty vote of thanks for Mr. Hirst, which was unanimously agreed to. The new Praedial Larceny Bill was next discussed. It was proposed that two members act for Brandon Hill, two for Colonel's Ridge and two for May Kraal. Agenda for next meeting,—Mr. Thos. Robotham to give a lecture on "Coffee;" Mr. J. Horatio Nelson, a paper on "The value of a Trade to our Young Men;" Messrs. C. A. Nelson and Edwin Wright to give their views from practical experience, on the "Banana Cultivation." The National Anthem terminated an interesting meeting till February.—J. N. SIMPSON, Secretary.

## MANAGEMENT OF LOCAL SOIL.

If the soil around be examined, it will be found to contain a large proportion of sand, with say from three to nine inches of humus at the top. One has only to look at the surface soil after a shower to find an accumulation of the small shot-like pebbles to prove the former statement; and to start digging the soil to see the depth of the dark brown, loamy soil to prove the existence of the latter. I would not be surprised to learn that on analysing our soil it be found to be composed largely of alluvial soil. Experience shews even the ordinary schoolboy that a shower of rain on the surface soon disappears, and leaves the soil perfectly dry, and apparently unaffected. Various means have been devised from time to time by our cultivators to retain moisture in the soil, that the crops may keep fresh and healthy during the dry seasons. "Make small yam hills." "Just make a hole with the machette and put in the cassava stick." "Make small cassava holes." "Don't turn up the red earth." "Our land is too dry to stand ploughing." "The harder the earth the better the plant thrives," etc., are expressions of ideas that meet us each turn of the way. Yet we all agree that all things being equal, a potato vine strayed into a yam bank, bears larger and better tubers than that allowed to remain on the hard soil. If asked the reason for the difference in size, the reply is because the yam bank is soft. To follow this example of nature is not the intention of most of our local cultivators, but rather

to stick to the unprofitable method—"The harder the earth the better the plant will thrive."

Soil left without preparation for planting, becomes hard and compact on its upper layer ; and seeds sown in it will scarcely, and in some cases, will not grow. If young plants of coffee or tobacco were placed in such soil, the tender roots would not be able to push their way through it to get the necessary plant food, and the plants would therefore die. To insure proper growth and the best results the soil must be thoroughly tilled and loosened, and all the particles finely broken up and made friable that there may be no difficulty with the young, tender roots, finding their way through it in their search for food. All must bear in mind that no plant can thrive well in a hard, compact soil, therefore dig deeply, dig well, and reduce the clods to powder. You should not stop to question how deep to dig, so long as you will thoroughly mix your soil with manure each time the operation is done. The deeper the tillage the deeper will the atmosphere descend in the soil and the more plant food will it prepare.

The top soil is generally richer than the under soil, and as the roots are below, do not fail to turn this soil to the bottom that it may supply the young roots with the necessary food ; at the same time bring the under soil to the top to be acted on by the atmosphere, and upon which you will need to place all the sweepings from the yard, pen, stables, etc., as well as other manures.

T illage as directed here, renders the soil more open and porous, facilitates the passage of water and air through it, and keeps down the weeds that are ever ready to use up the food that ought to be kept for the crops.

The condition of the soil has much to do with the size of the tubers borne by the plants. The softer and finer the soil is, the less resistance will it offer the tubers in the process of their enlargement. No one can expect a squash placed in a glass bottle to be larger than the space afforded by that bottle ; whereas an elastic vessel would entirely alter one's notion of the size of that fruit if similarly placed. As the glass bottle affects the size of the fruit, so does the hard soil impede the size of tubers and reduce them to a smaller size, while the soft soil acts like the elastic vessel. Therefore, dig, and let the soil yield to the pressure of the tubers.

The size of a tuber depends largely upon the amount of starch manufactured by the plant, and this in its turn depends on the quantity of available plant food, sunlight and *leaf-green* at its disposal.

It is the lack of the power of our soil to retain moisture why our cultivators err so much in its management. The general cry is the earth gets rid of its moisture too soon. If this is so, we must endeavour to get more water in, and aim at keeping it longer. The only sure way to gain this end, is dig deeply, dig thoroughly, and powder the clods. This will give a good chance for a proper supply of water when the rain falls. Then manure in exhaustively, and mulch thoroughly. This will not only retain the water in the soil by checking evaporation, but will improve its condition to a great extent and repay labour sevenfold. It is necessary to trench the land even in very dry places, on the hills and on the level. This will prevent an excessive waste of the decayed mulch or other manure by being washed away during a shower of rain. The trench will also collect more water to be disolved by the ploughed soil. Mulch these trenches as well as the prepared soil with grass. This will also check evaporation and supply plant food when it decays.

There may be many here who can bear testimonies to these truths. If not, I trust that the time is not far distant when my experience will be that of every cultivator in these parts.

Read at the Santa Cruz Branch of the Jamaica Agricultural Society, at a meeting of the Branch held 18th November, 1909. Written by the Secretary, S. Aug. Blythe, and asked to be published in the JOURNAL by the members and Travelling Instructor, J. T. Palache, Esq.